

In the Claims

1. (currently amended) A method of hierarchical linear regression to develop a set of linear transforms for adaptation of an initial set of Hidden Markov Models (HMM) models to a new environment comprising the steps of:

providing an initial set of HMM models for adaptation to a new acoustic environment and

obtaining ~~adapted new models directly from initial HMM models using a single set of transformations~~ adaptation speech data from a new environment,

adapting the initial set of models to the new acoustic environment by a procedure comprising the steps of creating an alignment of the adaptation speech data to the HMM model set, then performing the iterative steps of Estimate-Maximize (EM) estimation to generate a local set of linear transforms, merging the local set of linear transforms with a set of prior global transforms to form a new global set of transforms, adapting the initial set of HMM models using the new global set of transforms, and beginning a new EM estimation iteration step to repeat the procedure.

Claim 2 (canceled)

Claim 3 (canceled)

Claim 4 (canceled)

5.(new) The method of Claim1 wherein after a number of EM estimation iteration steps the steps of realigning the adaptation speech data with the adapted HMM models wherein parameters can be adjusted to expand the set of linear transforms, performing an EM estimation step to generate a new set local transforms, combining the new local transforms with the prior set

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of global transforms to form a new set of global transforms in accordance with the new alignment, and further performing iterative steps of EM estimation.